

United States Department of the Interior  
National Park Service

National Register of Historic Places  
Registration Form

## 1. Name of Property

Historic name: N/A

Other name/site number: East Fork Wolf Creek Pratt Truss Bridge (preferred); 71-LT-22

2. **Location** On W 290<sup>th</sup> Drive, 0.8 miles east of the intersection with S 50<sup>th</sup> Avenue; 2.0 miles south and 4.0 miles east of the hamlet of Chevenne; 6.0 miles north and 1.2 miles west of the town of Lucas.

not for publication

city or town Delhi Township X vicinity

### 3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this XX nomination        request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property XX meets        does not meet the National Register criteria. I recommend that this property be considered significant        nationally XX statewide        locally. ( See continuation sheet for additional comments.)

Signature of certifying official

Date \_\_\_\_\_

## KANSAS STATE HISTORICAL SOCIETY

State or Federal agency and bureau

In my opinion, the property        meets        does not meet the National Register criteria.  
( See continuation sheet for additional comments.)

Signature of commenting or other official

Date \_\_\_\_\_

State or Federal agency and bureau

#### 4. National Park Service Certification

I, hereby, certify that this property is:

entered in the National Register.

See continuation sheet

determined eligible for the National Register.

See continuation sheet

determined not eligible for the National Register.

removed from the National Register.

other, (explain:)

Signature of Keeper

Date of Action



Property Name East Fork Wolf Creek Pratt Truss BridgeCounty and State Osborne, KansasPage 2**5. Classification**

## Ownership of Property

☐ private  
☒ public-local  
☐ public-State  
☐ public-Federal

## Category of Property

☐ building(s)  
☐ district  
☐ site  
☒ structure  
☐ object

## No. of Resources within Property

contributing	noncontributing
<u>      </u>	<u>      </u> buildings
<u>      </u>	<u>      </u> sites
<u>  1  </u>	<u>      </u> structures
<u>      </u>	<u>      </u> objects
<u>  1  </u>	<u>  0  </u> Total

Name of related multiple property listing:  
(Enter "N/A" if property is not part of a  
multiple property listing.):

Metal Truss Bridges in Kansas

No. of contributing resources previously  
listed in the National Register

0**6. Functions or Use**

## Historic Functions

(Enter categories from instructions.)

TRANSPORTATION: Road-related (vehicular)

## Current Functions

(Enter categories from instructions.)

TRANSPORTATION: Road-related (vehicular)**7. Description**

## Architectural Classification

(Enter categories from instructions.)

OTHER: Pratt Truss

## Materials

(Enter categories from instructions.)

Foundation Limestone, concreteWalls       Roof       Other Metal: Iron, Steel

Narrative Description (Describe the historic and current condition of the property on one or more  
continuation sheets.)

Property Name East Fork Wolf Creek Pratt Truss BridgeCounty and State Osborne, KansasPage 3**8. Statement of Significance**

Applicable National Register Criteria (Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

☐ A Property is associated with events that have made a significant contribution to the broad patterns of our history.☐ B Property is associated with the lives of persons significant in our past.☒ C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.☐ D Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations (Mark "x" in all the boxes that apply.)

☐ A owned by a religious institution or used for religious purposes.☐ B removed from its original location.☐ C a birthplace or a grave.☐ D a cemetery.☐ E a reconstructed building, object, or structure.☐ F a commemorative property.☐ G less than 50 years of age or achieved significance within the past 50 years.Areas of Significance  
Enter categories from instructions.)ENGINEERINGTRANSPORTATION

Period of Significance

1899

Significant Dates

1899

Cultural Affiliation

N/A

Significant Person

N/A

Architect/Builder

Missouri Valley Bridge Company (Leavenworth, Kansas)

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.)



Property Name East Fork Wolf Creek Pratt Truss BridgeCounty and State Osborne, KansasPage 4**9. Major Bibliographical References**

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS):

☐ preliminary determination of individual listing  
(36 CFR 67) has been requested  
☐ previously listed in the National Register  
☐ previously determined eligible by the National Register  
☐ designated a National Historic Landmark  
☐ recorded by Historic American Buildings  
Survey # \_\_\_\_\_  
☐ recorded by Historic American Engineering

Primary location of additional data:

☒ State Historic Preservation Office  
☐ Other State agency  
☐ Federal agency  
☒ Local government  
☐ University  
☐ Other  
Specify repository:

Record # \_\_\_\_\_

**10. Geographical Data**Acreage of property <1 acre

UTM References

1	<u>1/4</u>	<u>5/3/7/3/2/0</u>	<u>4/3/3/3/0/5/0</u>	3	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>
	Zone	Easting	Northing		Zone	Easting	Northing						
2	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>

See continuation sheet

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet.)

Boundary Justification (Explain why the boundaries were selected on a continuation sheet.)

**11. Form Prepared By**name/title Kerry Davis, Architectural Historian & Elizabeth Rosin, Partnerorganization Historic Preservation Servicesdate August 5, 2002street & number 323 West Eighth Street, Suite 112telephone (816) 221-5133city or town Kansas Citystate Missouri zip code 64105**Additional Documentation**

Submit the following items with the completed form:

Continuation Sheets

Maps

A USGS map (7.5 or 15 minute series) indicating the property's location.

A sketch map for historic districts and properties having large acreage or numerous resources.

Photographs

Representative black-and-white photographs of the property.

Additional items (Check with the SHPO or FPO for any additional items.)

**Property Owners** (Complete this item at the request of the SHPO or FPO.)Name County of Osbornestreet & number 423 W. Main, P.O. Box 160telephone 785-346-2153city or town Osbornestate KS zip code 67473



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**NATIONAL REGISTER OF HISTORIC PLACES  
CONTINUATION SHEET**

Section Number 7 Page 1

East Fork Wolf Creek Pratt Truss Bridge  
Osborne County, Kansas

**DESCRIPTION**

**LOCATION AND SETTING**

The East Fork Wolf Creek Pratt Truss Bridge is located 6.0 miles north and 1.2 miles west of the town of Lucas in the heart of the Smoky Hills region of north-central Kansas, on the line between the SE ¼ of Section 29 and the NE ¼ of Section 32, Township 10S, Range 11W. The region is post rock country, defined by highland prairie hills with tree-lined creek valleys and rocky bluffs. The East Fork Wolf Creek Pratt Truss Bridge carries W 290<sup>th</sup> Drive across East Fork Wolf Creek, a narrow, intermittent branch of Wolf Creek. The gravel roadway, flanked by fenced pasture, aligns in a backward "S" curve with the East Fork Wolf Creek Pratt Truss Bridge.

**TRUSS TYPE**

The East Fork Wolf Creek Pratt Truss Bridge is a single span, pin-connected pony truss<sup>1</sup> that measures 63 feet in length and is 16 feet wide.<sup>2</sup> Quarry-faced, coursed limestone abutments support the bearings of the truss, which rest directly on the abutment seat. Historic, poured concrete buttresses reinforce the east abutment. The side walls of the abutments extend approximately 20 feet along the approach grades.

The inclined end posts rise from the bottom chords and meet the horizontal top chords to form a trapezoidal shape. The top chords and end posts consist of two channels, a top plate, and lacing bars; the bottom chords consist of flat eye bars.

The web members consist of vertical posts that form four equivalent panels and diagonal ties, which intersect within the two central panels. Angle stock and lacing bars compose the vertical posts. Flat eye bars and tension rods compose the diagonal ties.

The timber deck is 16 feet wide and rises 16½ feet above the creek bed on steel I-beam stringers. Approximately 6 inches of dirt covers the decking. Floor beams are located at the base of each vertical post and connected by lower lateral bracing rods.

The historic, paired, parallel angle bar guardrails are intact along the length of the truss. Evidence on the inclined end posts suggests identification plaques were removed.

**INTEGRITY**

The East Fork Wolf Creek Pratt Truss Bridge is an excellent example of this bridge type, historically the most popular built in Kansas.<sup>3</sup> The concrete buttress reinforcements are historic and have gained significance in their own right. The accumulation of dirt on the decking does not affect the overall integrity of the structure. The East Fork Wolf Creek Pratt Truss Bridge retains a good degree of integrity and the original workmanship, materials,

<sup>1</sup> A pony truss is also referred to as a low truss.

<sup>2</sup> The length equals the distance between abutments; the width equals deck width.

<sup>3</sup> Larry Jochims, *Metal Truss Bridges in Kansas 1861-1939, National Register of Historic Places Multiple Property Documentation Form*, (Topeka: Kansas State Historical Society, 1989), E1. Jochims indicates approximately 262 Pratt trusses extant in Kansas. Dale Nimz, *Activity III Review Initial Assessment Metal Truss Bridges*, (Topeka: Kansas State Historical Society, 1998), 6. Nimz identifies approximately 800 extant Pratt trusses in Kansas.



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**NATIONAL REGISTER OF HISTORIC PLACES  
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East Fork Wolf Creek Pratt Truss Bridge  
Osborne County, Kansas

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design, setting, and feeling of the property are readily apparent. Furthermore, the potential for preservation of the bridge is high. Located on a lightly traveled road, it is unlikely that traffic requirements will necessitate alteration or replacement.

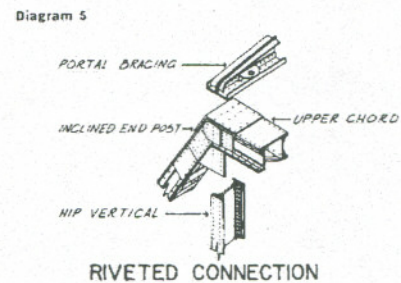
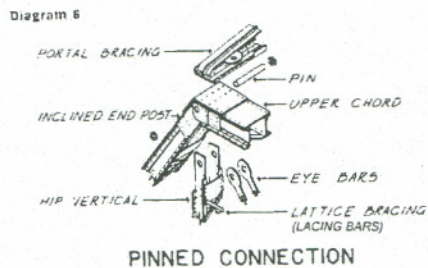
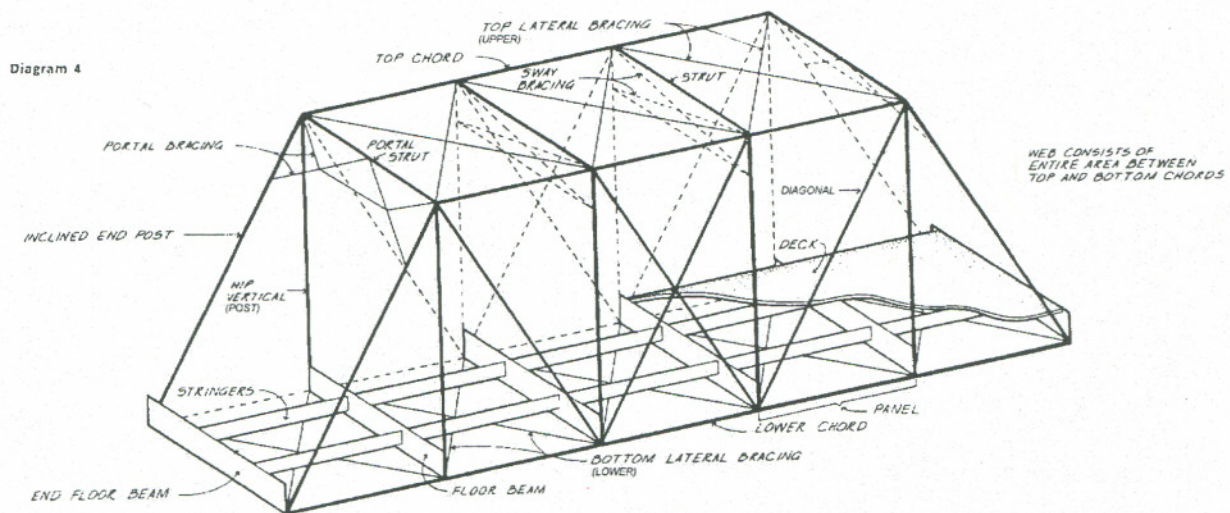
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**NATIONAL REGISTER OF HISTORIC PLACES  
CONTINUATION SHEET**

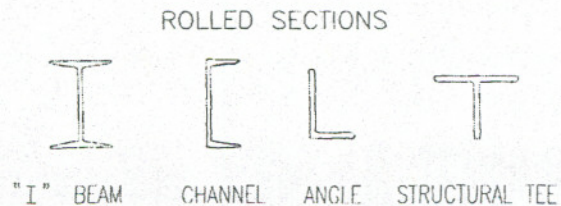
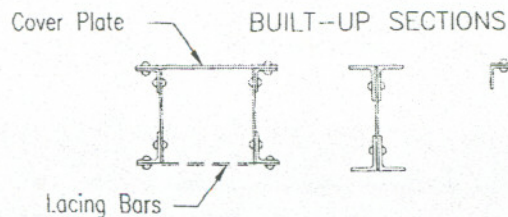
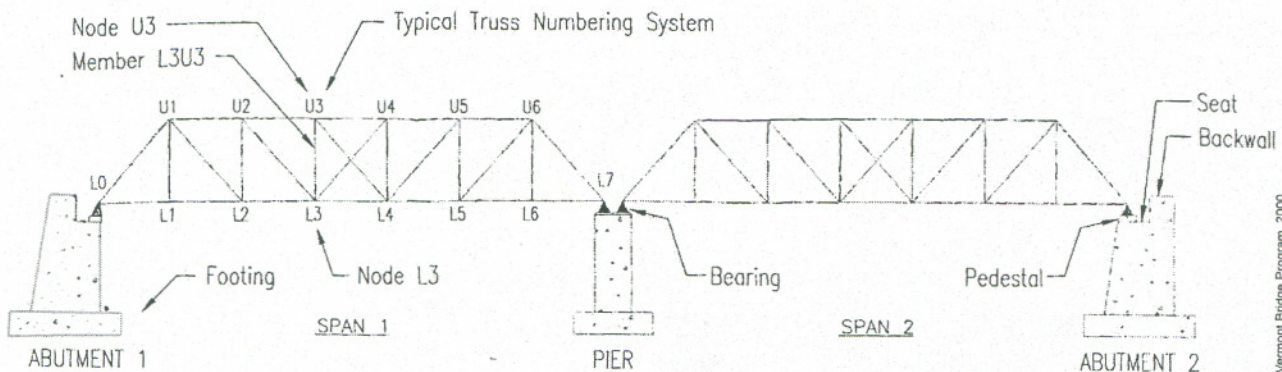
Section Number 7 Page 3

East Fork Wolf Creek Pratt Truss Bridge  
Osborne County, Kansas

**TRUSS TERMINOLOGY**



Bridge Truss Types: A Guide to Dating and Identifying, Technical Leaflet 95, AASLH



Vermont Truss Bridges and Maintenance, Vermont Bridge Program, 2000



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**NATIONAL REGISTER OF HISTORIC PLACES  
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East Fork Wolf Creek Pratt Truss Bridge  
Osborne County, Kansas

**STATEMENT OF SIGNIFICANCE**

The East Fork Wolf Creek Pratt Truss Bridge is significant under National Register Criterion C in the areas of Engineering and Transportation. As defined by the *Multiple Property Documentation Form for Metal Truss Bridges in Kansas*, it is an excellent example of the Pratt truss bridge type. Built in 1899,<sup>1</sup> the East Fork Wolf Creek Pratt Truss Bridge is an example of a common, economical bridge solution applied to a relatively short span. Its pin-connected construction and limestone abutments illustrate the standard construction techniques and materials during the period of significance. As no historic name identifies this bridge, the preferred name "East Fork Wolf Creek Pratt Truss Bridge" has been assigned. This describes and identifies the location, design, and function of the structure.

**ELABORATION**

The need for all-weather crossings of rivers and streams corresponded to the growth of the market economy across Kansas during the late nineteenth and early twentieth centuries. Bridges provided farmers easy access to markets and could make the difference between growth and stagnation for the many small, young communities across the state.<sup>2</sup> Proximity to a bridge often secured a town's economic stability, and it contributed to a local sense of modernity.

Prior to the 1930s, the railroad was the primary means of long-distance travel and there was little need for roads to extend more than a few dozen miles. With little stimulus for improving roads that would cross multiple jurisdictions, road construction and maintenance remained local concerns. County commissioners often carried the burden of selecting bridge locations, over which much contention was common.

The range of choices for bridge designs and companies was vast. Many of the larger bridge companies sold metal truss bridges through mail order catalogues. County commissioners could simply specify the span, clearance needs, and truss type (if there was a preference), then choose the lowest bidder from the numerous competing companies that had salesmen in the field.

By the late nineteenth century, fabrication of iron and steel was widespread. The speed of construction and the relatively low cost of metal truss bridge parts ensured their popularity over labor-intensive masonry bridges and short-lived timber bridges. Toward the end of the nineteenth century the quality, quantity, and cost of steel improved to such a degree that it virtually replaced wrought iron for bridge construction by 1910.<sup>3</sup>

Most metal trusses were constructed of built-up members composed of mass-produced, standard-shaped channel, plate, and angle stock purchased from one or more of the numerous steel companies nationwide. The bridge companies preassembled trusses in their factories then simply shipped them to the bridge site for installation. Installation involved grading approaches, constructing abutments and piers, erecting preassembled floor and truss members, and placing deck material.

<sup>1</sup> *Kansas Historic Bridge Rating System*, Kansas Department of Transportation, 1980-1983.

<sup>2</sup> Jochims, E.

<sup>3</sup> *Ibid*, F.



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East Fork Wolf Creek Pratt Truss Bridge  
Osborne County, Kansas

Before 1900, generally all panel point connections – the locations at which structural bridge elements intersect – were made with the use of a pin. This technique was so widespread that it became one of the distinctive features of American bridge construction in the nineteenth century.<sup>4</sup> The pin-connected construction of the East Fork Wolf Creek Pratt Truss Bridge illustrates the standard use of this technique. However, subsequent advancements in pneumatic riveting techniques greatly improved rivet installation quality, enabling more reliable panel point connections. With the increased portability of this construction technology, the more rigid, riveted technique rapidly surpassed pin-connected bridge construction during the first years of the twentieth century.

In addition, the contemporary development of economic cement production promoted the widespread combination of steel and concrete in bridge construction. It was not uncommon for older metal truss bridges to receive new reinforced concrete decks or poured concrete reinforcements for older stone abutments. By the 1920s, reinforced concrete was the standard material for abutments, piers, and decks of steel truss bridges. The limestone abutments and poured concrete buttresses of the East Fork Wolf Creek Pratt Truss Bridge illustrate the transition in construction technology and materials that occurred during the period of significance.

The East Fork Wolf Creek Pratt Truss Bridge is a classic example of this truss design. Patented in 1844, the Pratt truss incorporates vertical members in compression and diagonal members in tension, a design that reduces the required length of compression members, helping to prevent bending or buckling.<sup>5</sup> Visually, the compression and tension members of a pin-connected Pratt truss are clearly different, with the thin diagonal members in tension and the posts in compression. The Pratt truss became the most common bridge type of the late nineteenth and early twentieth centuries and spawned design variations including Parker, Camelback, Baltimore, Truss Leg Bedstead, Lenticular, and Pennsylvania trusses.<sup>6</sup>

In Kansas, Pratt truss bridges were constructed well into the twentieth century, suggesting the appeal of the design's strength and economical construction costs.<sup>7</sup> In 1998, approximately 800 Pratt truss bridges, including the East Fork Wolf Creek Pratt Truss Bridge, existed throughout the state of Kansas.<sup>8</sup>

**STRUCTURE HISTORY**

The nearby town of Delhi was known as a significant trading point in the early 1880s “[with] great expectations of a railroad from Salina.”<sup>9</sup> However, by 1888 the Union Pacific Railroad had aligned its tracks six miles south through the town of Lucas in Russell County, skirting this part of Osborne County entirely. Delhi and the nearby hamlet of Cheyenne remained small as commercial growth blossomed along the rail line to the south. Lucas became a regional trading and shipping center for the rural community of southeastern Osborne County. As a

<sup>4</sup> Ibid, F.

<sup>5</sup> T. Allan Comp and Donald Jackson, *Bridge Truss Types: A guide to dating and identifying*. (Nashville: American Association for State and Local History, Technical Leaflet 95), 8.

<sup>6</sup> Ibid.

<sup>7</sup> Jochims, F2

<sup>8</sup> Nimz, 6.

<sup>9</sup> William G. Cutler, *History of the State of Kansas: Osborne County*. (Chicago: A. T. Andreas, 1883), Part 6.



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**NATIONAL REGISTER OF HISTORIC PLACES  
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East Fork Wolf Creek Pratt Truss Bridge  
Osborne County, Kansas

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result, fords and bridges that provided area farmers with access to the markets in Lucas were critical to the survival of the regional economy.

The Missouri Valley Bridge Company of Leavenworth, Kansas, a prolific Kansas bridge builder, built the East Fork Wolf Creek Pratt Truss Bridge in 1899.<sup>10</sup> No further construction history has been located at this time.<sup>11</sup> In 1874, Edwin I. Farnsworth and D. W. Eaves, of Wrought Iron Bridge Company (Canton, Ohio), founded the Missouri Valley Bridge Company in an effort to manufacture and sell bridges locally rather than import them from eastern firms. By 1904, the company incorporated as Missouri Valley Bridge and Iron Company, and built everything from bridges to boats. Their most notable project was the construction of the piers for the San Francisco Bay Bridge in 1936.<sup>12</sup>

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<sup>10</sup> *Kansas Historic Bridge Rating System*, Kansas Department of Transportation, 1980-1983.

<sup>11</sup> Inquiry into the Osborne County Road and Bridge records, Kansas Department of Transportation records, Kansas State Historical Society archives, Osborne County Historical Society, and *Western Contractor* revealed no further construction history specific to the East Fork Wolf Creek Pratt Truss Bridge.

<sup>12</sup> Jochims, E3.



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East Fork Wolf Creek Pratt Truss Bridge  
Osborne County, Kansas

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**BIBLIOGRAPHY**

Comp, T. Allan and Donald Jackson. *Bridge Truss Types: A guide to dating and identifying*. Nashville, Tennessee: American Association for State and Local History, Technical Leaflet 95.

Cutler, William G. *History of the State of Kansas*. Chicago: A. T. Andreas, 1883.

*Delaware Historic Bridges, Survey and Evaluation*. Historic Architecture and Engineering Series, No. 89. Dover: Delaware Department of Transportation, Division of Highways, 1991.

*Historic Highway Bridges in Pennsylvania*. Harrisburg: Pennsylvania Department of Transportation and Pennsylvania Historical and Museum Commission, 1986.

"Industrial Images from the Library of Congress," *Illustrated Pittsburgh Retrospective* [article on-line]; available from <http://www.andrew.cmu.edu/user/vck/pghretro.htm>; Internet; accessed 18 March 2002.

Jochims, Larry. *Metal Truss Bridges in Kansas 1861-1939, National Register of Historic Places Multiple Property Documentation Form*. Topeka: Kansas State Historical Society, 1989.

Jochims, Larry. *Riley Creek Bridge, National Register of Historic Places Registration Form*. Topeka: Kansas State Historical Society, 1989.

*Kansas Historic Bridge Rating System*. Kansas Department of Transportation, 1980-1983.

Nimz, Dale E. *Activity III Review Initial Assessment Metal Truss Bridges*. Topeka: Kansas State Historical Society, 1998.

*Rand, McNally & Co.'s Kansas*. Rand, McNally & Co., 1888 [digitized maps on-line]; available from <http://www.specialcollections.wichita.edu/collections/maps/index.asp>; Internet; accessed 27 May 2002.

*Second Ohio Historic Bridge Inventory, The Evaluation and Preservation Plan*. Columbus: Ohio Department of Transportation, 1990.

*Vermont Truss Bridges and Maintenance*. Vermont Bridge Program, 2000.

*WPA Guide to 1930s Kansas*. Lawrence: University of Kansas Press, 1984.



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Section Number 10 Page 8

East Fork Wolf Creek Pratt Truss Bridge  
Osborne County, Kansas

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**GEOGRAPHICAL DATA**

**Verbal Boundary Description:**

Located on the line between the SE  $\frac{1}{4}$  of Section 29 and the NE  $\frac{1}{4}$  of Section 32, Township 10S, Range 11W, the East Fork Wolf Creek Pratt Truss Bridge encompasses an area measuring approximately 63 feet by 16 feet. The northwest corner of this area corresponds to the northwest corner of the bridge.

**Boundary Justification:**

The boundary includes the truss, deck, abutments, and associated approaches that represent the significant features associated with the bridge structure.



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**NATIONAL REGISTER OF HISTORIC PLACES  
CONTINUATION SHEET**

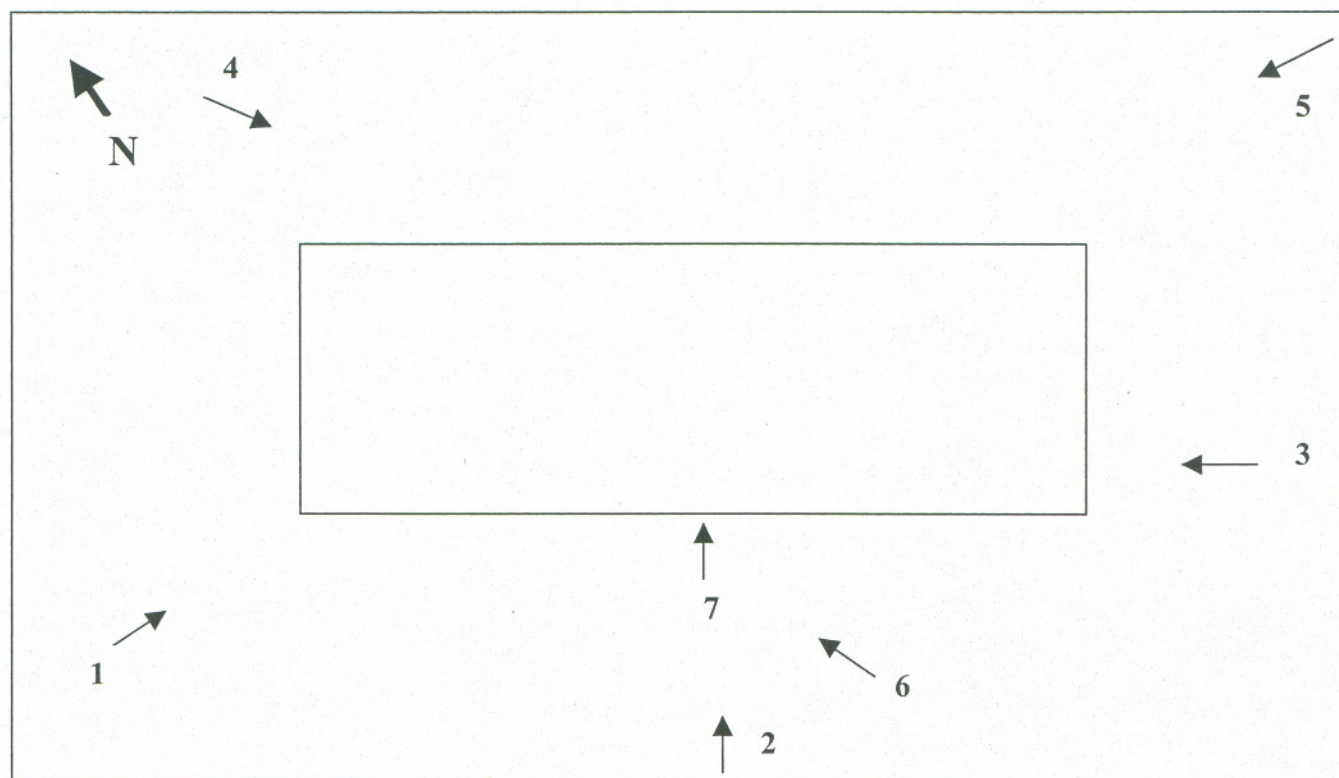
Section - Photographic Documentation Page 9

East Fork Wolf Creek Pratt Truss Bridge  
Osborne County, Kansas

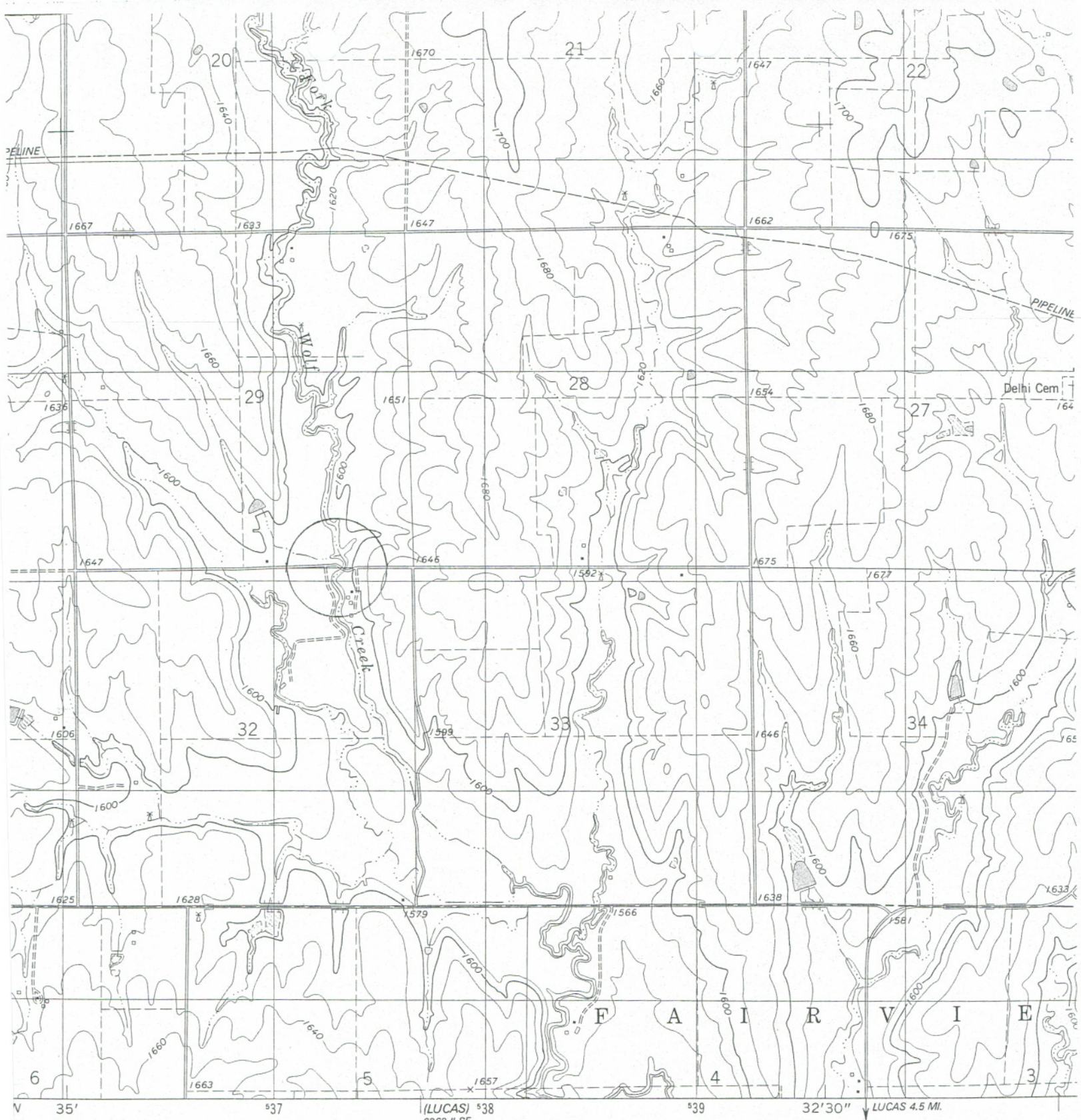
**PHOTO LOG**

Photographer: Kerry Davis  
Date of Photographs: February 2002  
Location of Original Negative: Kansas State Historical Society, Topeka, Kansas

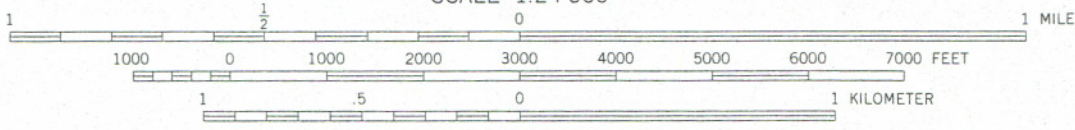
Photograph Number	Camera View
1.	View E, bridge truss and abutments
2.	View NE, bridge truss and abutments
3.	View NW, along roadway, bridge truss
4.	View SE, bridge truss and abutments
5.	View W, road alignment and bridge truss
6.	View N, bridge truss, understructure, and northwest abutment
7.	View NE, detail, lower pin connection



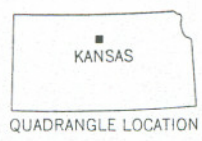




SCALE 1:24 000



CONTOUR INTERVAL 20 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1929



THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS  
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092  
AND STATE GEOLOGICAL SURVEY, LAWRENCE, KANSAS 66044  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST